

**Table XX.** Summary results of available data, aquatic life exceedances and threats for water sources of interest in and near Capitol Reef National Park for selected water-quality vital signs.

**Note:** This DRAFT table is intended as a brief presentation of existing water quality data for important waters in this park. It is a compromise presenting a useful data summary in a relatively small space. When included for each park in Chapter 3 of the Phase III plan, these tables will be preceded with an explanation and guide for interpreting the table. This will include such things as (1) Medians are used as a general characterization of conditions that avoids the bias of a mean that may be influenced by a few outlier values, (2) exceedances are based on state standards that apply to that particular river or river segment, (3) the 15-year period of record was selected as relatively representative of current conditions and to exclude older analyses where the level-of-detection often exceeded the current standard for some parameters. Shaded columns are water sources that were identified for possible water quality vital signs monitoring in the Phase II Report, with new water sources added where water quality data has been found to exist. All of the inorganic parameters for which standards generally exist are included, along with other parameters of particular interest (i.e. discharge and macroinvertebrates) for which standards do not exist, or are applied in a complex manner that cannot be depicted in a simple table value comparison. Additional data analysis are used where areas of concern are identified that will look at trends, relationships with flows or seasonality, the larger period of record, etc.

These tables are intended only as a screening tool to identify waters that are a high priority for long-term monitoring, and as a useful reference. As such, an “exceedance” identified here may or may not constitute an exceedance under all of the conditions applied to a state regulatory standard.

[Adj., Adjusted [priority] from historical data analyses; cfs, cubic feet per second; col/100 mL, colonies per 100 milliliters; deg. C, degrees Celsius; DWS, Drinking Water Supply; Med., Median; mg/L, milligrams per liter; NA, Not Applicable; ND, Not Determined; NTU/JTU, nephelometric turbidity units/Jackson turbidity units; POR, Period of Record; Sec. Cont. Rec, Secondary Contact (Recreation); SP, spring; SU, standard units; SW, surface water; µg/L, micrograms per liter; µS/cm, microsiemens per centimeter]

Vital Sign (Exceedances refer to Aquatic Warm or Cold Use unless otherwise specified; constituents shown in blue not analyzed for exceedances or threats)	Water Source (Grayed-in box indicates water sources were prioritized in vital signs tables in Phase II report.)										
	Fremont River <sup>1</sup>	Pleasant Creek <sup>1</sup>	Sulphur Creek <sup>1</sup>	Halls Creek <sup>1</sup>	Oak Creek <sup>1</sup>	Polk Creek <sup>1,2</sup>	Middle Desert Wash <sup>3</sup>	Ackland Spring	Ackland Seep	Sulphur Spring	South Desert Spring
Water-quality data available (01/01/1988–01/01/2003)	SW	SW	SW	SW	SW	SW	SW	SP	SEEP	SP	SP
<b>Core Field Parameters:</b>											
<b>pH, High</b>											
Median 15-Year Value (SU)	8.6	8.5	8.3	8.4	8.7	8.2	----	9.0	8.5	7.4	8.3
Exceedances (# sites)	71 (4)	6 (1)	4 (1)	NONE	NONE	NONE	----	2 (1)	NONE	NONE	NONE
Threats - 10% (# sites)	1341 (7)	123 (2)	471 (5)	4 (2)	2 (2)	1 (1)	----	4 (1)	3 (1)	1 (1)	NONE
No. of Samples (# sites)	1467 (7)	144 (2)	645 (5)	4 (2)	2 (2)	2 (1)	NONE	4 (1)	4 (1)	4 (1)	1 (1)
<b>pH, Low</b>											
Median 15-Year Value (SU)	8.6	8.5	8.3	8.4	8.7	8.2	----	9.0	8.5	7.4	8.3

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	Fremont River <sup>1</sup>	Pleasant Creek <sup>1</sup>	Sulphur Creek <sup>1</sup>	Halls Creek <sup>1</sup>	Oak Creek <sup>1</sup>	Polk Creek <sup>1,2</sup>	Middle Desert Wash <sup>3</sup>	Ackland Spring	Ackland Seep	Sulphur SPring	South Desert Spring
Water-quality data available (01/01/1988~01/01/2003)	SW	SW	SW	SW	SW	SW	SW	SP	SEEP	SP	SP
Exceedances (# sites)	1 (1)	NONE	1 (1)	NONE	NONE	NONE	----	NONE	NONE	NONE	NONE
Threats - 10% (# sites)	1 (1)	2 (1)	2 (1)	NONE	NONE	NONE	----	NONE	NONE	NONE	NONE
No. of Samples (# sites)	1463 (7)	144 (2)	645 (5)	4 (2)	2 (2)	2 (1)	NONE	4 (1)	4 (1)	4 (1)	1 (1)
<b>Specific Conductance</b>											
Median 15-Year Value (µS/cm)	573	270	1359	567	235	3670	----	2600	1765	991	631
No. of Samples (# sites)	2033 (7)	177 (2)	690 (7)	6 (2)	2 (2)	2 (1)	NONE	5 (1)	5 (1)	5 (1)	2(1)
<b>Dissolved Oxygen (30-Day Avg.)</b>											
Median 15-Year Value (mg/L)	8.8	8.4	8.7	9.5	6.2	6.5	----	----	----	----	----
Exceedances (# sites)	8 (4)	2 (2)	19 (3)	NONE	1 (1)	NONE	----	NA	NA	NA	NA
Threats - 10% (# sites)	41 (5)	23 (2)	100 (4)	NONE	1 (1)	1 (1)	----	NA	NA	NA	NA
No. of Samples (# sites)	1372 (6)	125 (2)	585 (5)	1 (1)	1 (1)	1 (1)	NONE	NONE	NONE	NONE	NONE
<b>Water Temperature</b>											
Median 15-Year Value (deg. C)	12.3	12.1	14.1	17.8	27	24	----	19.5	25.5	22.5	13
Exceedances (# sites)	61 (5)	38 (2)	144 (6)	1 (1)	1 (1)	2 (1)	----	1 (1)	3 (1)	1 (1)	NONE
Threats - 10% (# sites)	177 (6)	51 (2)	216 (6)	2 (2)	1 (1)	2 (1)	----	3 (1)	3 (1)	1 (1)	NONE
No. of Samples (# sites)	1958 (6)	173 (2)	734 (6)	6 (2)	1 (1)	2 (1)	NONE	3 (1)	3 (1)	2 (1)	3 (1)
<b>Discharge/Flow</b>											
Median 15-Year Value (cfs)	78	5.2	4	1.05	3.4	0.052	----	----	----	----	----
No. of Samples (# sites)	70 (3)	10 (1)	11 (1)	2 (1)	2 (1)	2 (1)	NONE	NONE	NONE	NONE	NONE
<b>Nutrients</b>											
<b>Ammonia (as N)</b>											
Median 15-Year Value (mg/L)	0.155	0.12	0.47	----	----	----	----	0.14	0.08	----	0.13
No. of Samples (# sites)	98 (3)	37 (1)	34 (1)	NONE	NONE	NONE	NONE	3 (1)	3 (1)	NONE	3 (1)
<b>Nitrate (as N)</b>											
Median 15-Year Value (mg/L)	0.233	0.1	0.38	----	----	----	----	4.5	4.4	----	4.4
Exceedances (# sites)	1 (1)	NONE	NONE	----	----	----	----	1 (1)	1 (1)	----	1 (1)
Threats - 10% (# sites)	1 (1)	2 (1)	1 (1)	----	----	----	----	1 (1)	1 (1)	----	1 (1)
No. of Samples (# sites)	89 (5)	29 (1)	38 (1)	NONE	NONE	NONE	NONE	2 (1)	1 (1)	NONE	1 (1)
<b>Nitrate + Nitrite (as N)</b>											
Median 15-Year Value (mg/L)	0.165	----	----	----	----	----	----	----	----	----	----
No. of Samples (# sites)	4 (2)	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
<b>Ortho Phosphorus (as P)</b>											
Median 15-Year Value (mg/L)	0.05	0.03	0.07	0.09	----	----	----	0.05	0.2	0.065	0.06
No. of Samples (# sites)	54 (4)	17 (1)	21 (1)	3 (2)	NONE	NONE	NONE	3 (1)	3 (1)	2 (1)	4 (1)
<b>Total Nitrogen (as N)</b>											
Median 15-Year Value (mg/L)	0.315	----	----	----	----	----	----	----	----	----	----
No. of Samples (# sites)	4 (2)	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
<b>Total Phosphorus (as P)</b>											
Median 15-Year Value (mg/L)	0.080	0.04	0.067	0.0125*	0.036	0.0165	----	----	----	----	----
Exceedances (# sites)	42 (3)	6 (1)	8 (1)	NONE	NONE	NONE	----	----	----	----	----
Threats - 10% (# sites)	45 (3)	10 (1)	8 (1)	NONE	NONE	NONE	----	----	----	----	----
No. of Samples (# sites)	70 (3)	11 (1)	11 (1)	2 (1)	1 (1)	2 (1)	NONE	NONE	NONE	NONE	NONE





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	Fremont River <sup>1</sup>	Pleasant Creek <sup>1</sup>	Sulphur Creek <sup>1</sup>	Halls Creek <sup>1</sup>	Oak Creek <sup>1</sup>	Polk Creek <sup>1,2</sup>	Middle Desert Wash <sup>3</sup>	Ackland Spring	Ackland Seep	Sulphur Spring	South Desert Spring
Water-quality data available (01/01/1988~01/01/2003)	SW	SW	SW	SW	SW	SW	SW	SP	SEEP	SP	SP
<b>Inorganics</b>											
<b>Boron, Dissolved (Agriculture)</b>											
Median 15-Year Value (mg/L)	----	----	----	----	----	----	----	----	----	----	----
No. of Samples (# sites)	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
<b>Chlorine, Total Residual</b>											
Median 15-Year Value (mg/L)	0.02	----	----	----	----	----	----	----	----	----	----
Exceedances (# sites)	16 (1)	----	----	----	----	----	----	----	----	----	----
Threats - 10% (# sites)	31 (1)	----	----	----	----	----	----	----	----	----	----
No. of Samples (# sites)	31 (1)	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
<b>Cyanide, Amenable to Chorine</b>											
No. of Samples	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
<b>Hydrogen Sulfide (Undissoc.)</b>											
No. of Samples	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
<b>Microorganisms (Sec. Cont. Rec.)</b>											
<b>Fecal Coliform</b>											
1990-Pres. Geom. Mean (col/100 mL)	5.4	2.3	15	----	1	----	----	1	1	----	1.4
Exceedances (#)	NONE	NONE	NONE	----	NONE	----	----	NONE	NONE	----	NONE
Threats - 10% (#)	NONE	NONE	NONE	----	NONE	----	----	NONE	NONE	----	NONE
No. of Samples	504 (5)	75 (1)	299 (5)	NONE	1 (1)	NONE	NONE	3 (1)	1 (1)	NONE	2 (1)
<b>Total Coliform</b>											
1990-Pres. Geom. Mean (col/100 mL)	----	----	----	----	----	----	----	----	----	----	----
Exceedances (#)	----	----	----	----	----	----	----	----	----	----	----
Threats - 10% (#)	----	----	----	----	----	----	----	----	----	----	----
No. of Samples	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
<b>Macroinvertebrates - Various</b>											
No. of Samples (# sites)	1-22 (1)	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
<b>Chlorophyll</b>											
No. of Samples	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
<b>Carbon- TOC</b>											
Median 15-Year Value (mg/L)	2.8	----	----	----	----	----	----	----	----	----	----
No. of Samples (# sites)	3 (1)	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
<b>Organics / Pesticides - Various</b>											
No. of Samples	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
<b>Turbidity</b>											
Median 15-Year Value (NTU/JTU)	25.0	4.36	23	6.6	11.5	1.27	----	6.5	5	1	2.2
No. of Samples (# sites)	2036 (6)	177 (2)	760 (6)	6 (2)	2 (2)	2 (1)	NONE	5 (1)	5 (1)	2 (1)	5 (1)
<b>Radiochemicals – All Regulated</b>											
No. of Samples	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
Priority (Phase II)	H	H	H	H	H	M	M	ND	ND	ND	ND
Priority (Phase III) – Adj.											
Current Sampling Schedule	12	12	12	6	12	NA	NA	NA	NA	NA	NA

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Water-quality data available (01/01/1988~01/01/2003)	SW	SW	SW	SW	SW	SW	SW	SP	SEEP	SP	SP
	samples/ year	samples/ year	samples/ year	samples/ year	samples/ year						

<sup>1</sup> Includes all surface water sites on water source located within park boundary.

<sup>2</sup> No data available for Bulberry Creek.

<sup>3</sup> No recent available for Middle Desert Wash (available data is from 1975 to 1979).

\* Indicates median values where censored values comprise >25% of results. A value equal to half the censoring level was used for all median calculations.